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Sustainable Cities: Challenges and Opportunities at Different Scales

Report from the International Conference "Sustainability 2014: Future Urban Development at Different Scales"

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In a phase of (re-)urbanization of societies, cities all over the world face the challenge to reinvent themselves in line with sustainable development (cf. Fücks 2011). Climate change, limited resources, demographic developments, debt crisis, deterioration of the ecological sphere, social inequality and other issues urgently call for action in terms of urban development. On the one hand, cities are spaces where the mentioned challenges accumulate as cities are their causers. On the other hand, due to the density of innovation, creativity and knowledge inherent to urban spaces, they are an important factor when it comes to facing the challenge of sustainability transformation.

TA research has been dealing with sustainable development for years now. At ITAS, there is a focus on sustainability and ecology research especially in the fields of energy systems, land use and resources. In particular the research activities in the field of sustainable urban development were intensified at the institute in the last years.[1] Therefore it is hardly surprising that the international research initiative "Forum on Sustainable Technological Development in a Globalizing World", of which ITAS has been a member since its foundation in 2002, held its annual international conference with the title "Sustainability 2014: Future Urban Development at Different Scales" in Karlsruhe. The conference brought together experiences from theory and practice as well as different cultural and disciplinary perspectives on current issues of sustainable urban development at different scales and in different local contexts. Main aspects of the discussions will be outlined here.

1 Designing the Existing

Especially the existing cities of the Western world pose a challenge for sustainable development. The new construction rate in the German housing sector was below 1 percent for years (cf. Rexroth et al. 2014, p. 18). Current and future demographic developments which will make Western societies shrink make it clear that dealing with the existing urban environments is of prime importance for a sustainable urban development. How can already existing urban spaces – neighbourhoods, district, cities and urban regions – be designed and transformed to be more sustainable?

The presentation of Freya Brandl focused on communal living in Vienna in the context of ageing Western societies. In Vienna, more and more elder singles live on their own – with consequences for the well-being of the residents. The concept of the project "eco-com.60+" is to convert existing multi-family houses into communal apartments where single kitchens or living rooms are merged into one communal room. Separate apartments for the privacy of the residents remain. The aim is to increase the number of apartments in an overstretched housing market, foster energy efficiency as well as social exchange and responsibility within the neighbourhood.

The overall objective of the "District Future – Urban Lab" project is to transform an existing district of the city of Karlsruhe (Germany) into a sustainable one. How is this to be done? In his presentation, Marius Albiez described the transdisciplinary approach of the research project at the Karlsruhe Institute of Technology. The project intends to bring together knowledge and technological innovation of the local university with

the specific knowledge and competences of local public and private stakeholders in order to generate socio-technical innovation for a sustainable urban life in the project area. The whole process of transformation is dialogue-based and fosters active participation in thematic fields like mobility, consumption, housing, health and energy supply.

In his presentation "Peri-Urbanism and the Commons: Towards Participative Approaches to Societal Risk Management" Appukuttan Damodaran focused on sustainable development at the urban region scale. He pointed out that the rapid urbanisation process of Bangalore (India) deeply affects existing peri-urban villages in a direct and indirect way. The issue of limited water resources for example was not taken into account in urban planning in Bangalore. As a result, this situation has, among others, negative effects on land use, traditional knowledge and the economic system. It "accelerates the depletion of natural resources in the village".

2 Governing the Sustainable City

From a global perspective, systems of urban management and sustainability transformation vary considerably. In Western societies one can observe that the understanding of the responsibility of politics and the administration, civil society and the economy is undergoing a change. In this sense, top-down management has been replaced by comprehensive governance in the last years which includes dialogue-based processes, active citizenship and participation, corporate social responsibility as well as the coordination of networks. This contrasts with the situation in other societies, e.g. in Asia and Eastern Europe, where polity still plays a significant role.

At the conference Ildiko Tulbure described and analysed the developments and political endeavours in Romania after the country's accession to the European Union in 2007. The Romanian government started a programme for the rehabilitation of residential urban buildings constructed between 1950 and 1990 in order to foster urban regeneration, reduce energy consumption and offer new transportation possibilities. It was one of the first steps to improve the sustainability performance on the local level.

At the municipal level the city of Ludwigsburg (Germany) has been engaged in driving forward sustainable urban development for more than 10 years now. What is unique is the implementation of the "Department for Sustainable Urban Development" as an administrative unit to accompany the established departments. Albert Geiger, the head of the Department for Sustainable Urban Development, discussed core functions and tasks of the coordination and communication with administration units and external partners as well as the design of integrated urban development plans. He also pointed to the implementation of an integrated sustainable management system which works as an instrument to realise and evaluate sustainability measures.

3 The Importance of Locality and Culture

Today's discourse on sustainable urban development is characterised by a large spectrum of concepts from theory and practice with different thematic foci and at different scales: EcoCity, car-free districts, zero emission regions and co-housing – to name just a few. Thereby, two main conceptual trends developed over the last years. On the one hand, there are approaches oriented towards a local and community-based subsistence and adapted urban technologies like Transition Towns and the urban gardening movement. On the other hand, you can find approaches based on the implementation of high tech urban infrastructure systems. Prominent examples are the SmartCity and ResilientCity concepts. This huge variety of concepts points to the fact that different local contexts with specific challenges and frameworks require well-adjusted approaches.

A central aspect which defines local context are cultural practices. Michael LaFond focused in his presentation on people's resources, their interests and their cultures which are important elements of creative sustainability in Berlin. There, citizens act as urban pioneers, manage their own neighbourhood directly and initiate democratic processes. These societies "participate in societal decision-making processes" and "conserve social resources" (Kopfmüller et al. 2001, pp. 251, 257).

Appukuttan Damodaran dealt with culture in urban development processes as well. In his

remarks on land-use change in peri-urban areas he argued that cultural aspects play an important role in order to improve resilience in crisis situations, e.g. climate change.

4 Concluding Remarks

There seems to be a consensus that urban futures have to be sustainable ones – but how? Discussions at the Sustainability 2014 made clear that different local circumstances require measures that work with the specific needs and local characteristics of the respective urban spaces to make sustainable urban developments possible. At the global scale, the rapid growth of (new) Asian and African mega cities is opposed to moderate and spatially selected processes of reurbanisation in Western societies where urban developers are confronted with the design of the existing, for instance. At the local scale, there is the need to understand the inherent logic of a city. Local structures shape the character of a city, its atmosphere as well as strategies for action and finding solutions by the city's actors (cf. Berking/Löw 2008).

The examples of Romania and Germany mentioned in section 2 illustrate pathways of how sustainability can be implemented in politics and administration. The institutionalisation of sustainability is a welcome development to be fostered. As the civil society more and more insists on having a place at the table of decision making and the urban society is needed as a driving force for sustainable innovations, new forms of governing the sustainable city are necessary too. Furthermore, the question can be raised in how far strongly institutionalised sustainable thinking and action in politics and administration hinder active citizenship. In his presentation, Michael LaFond therefore suggested dialogue-oriented processes of urban development in order to balance different interests, perspectives and logics of action of a huge variety of actors from the civil society, the economy and politics instead of doing non-integrative top-down or bottom-up processes. Marius Albiez pointed to the specific role science could take by connecting actors of the urban society.

Note

1) See for instance the ITAS projects *Climate Adaptation Santiago* (http://www.itas.kit.edu/english/num_completed_stel09_cas.php), *District Future – Urban Lab* (http://www.itas.kit.edu/english/projects_paro11_quazu.php) and *Quartier Zukunft* (http://www.quartierzukunft.de/en).

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„Wir sind das Smart Grid" – Zu einer aktuellen Debatte unter InformatikerInnen

Bericht vom 2. Kongress Energie + Informatik – Dezentrale Energie smart verknüpft

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von Neo Khala, Patrick Sumpf und Christian Büscher, ITAS

Intelligent vernetzte Energiesysteme der Zukunft sind technisch und sozial komplex. Das Forschungs- und Praxisfeld „Energie und Informatik" generiert verschiedene Probleme für eine forschungsintensive Wirtschaft als auch eine kommerziell anschlussfähige Wissenschaft. So ergeben sich neben der Vernetzung von immer mehr technischen Anlagen auch erhöhte Anforderungen an die Organisations- und Regelungsstrukturen, mit denen sich Operateure, Investoren, Konsumenten und andere betroffene Akteure